

Time Allowed: 30 minutes

Total Questions: 20

Instructions for Students:

- Read each question carefully.
 - Choose the best possible answer(s) from the options provided.
 - You should provide answers to all the given questions. Most of the questions have only one correct answer.
 - However, some questions may have multiple correct answers. In such cases, you must mark all the correct answers to receive the full mark, as no partial marks will be awarded. These questions can be identified by the phrase “Select all that apply”.
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1.) A tuple contains references to lists. After the following operations, what will be the output?

```
list_a = [1]
list_b = [2]
t = (list_a, list_b)
list_c = t[0]
list_c.append(3)
list_b = [4]
print(t)
```

- A) ([1, 3], [4]) B) ([1], [4]) C) ([1, 3], [2]) D) ([1], [2]) E) ([1, 3], [2, 4])

2.) Given this nested dictionary structure: What's the output?

```
data = {'x': {'y': [1, 2, {'z': 3}]}}
value = data['x']['y'][2]['z']
print(value)
```

- A) {'z': 3} B) 3 C) 2 D) KeyError E) TypeError

3.) What happens here?

```
lst = [1, 2, 3]
lst[len(lst):] = lst
print(lst)
```

- A) [1, 2, 3, [...]] B) [1, 2, 3] C) [1, 2, 3, None, None, None]
D) ValueError E) [1, 2, 3, 1, 2, 3]

4.) Consider this slicing operation: What's the output?

```
lst = [1, 2, 3, 4, 5]
lst[ : :2] = [0, 0, 0]
print(lst)
```

- A) [0, 0, 0, 4, 5] B) ValueError C) [0, 2, 0, 4, 0] D) [1, 0, 3, 0, 5]
E) [0, 0, 0]

5.) What's the output?

```
t = ([1, 2], [3, 4])
t[0][:] = [5, 6]
print(t[0])
```

- A) [1, 2] B) [5, 6] C) TypeError D) ValueError E) None

6.) Which of the following statements about Python lists and tuples are correct? Select all that apply.

- A) Elements in a list can be changed after creation.
B) Tuples are immutable and do not allow item assignment.
C) Lists support dynamic resizing (elements can be added/removed).
D) Tuples automatically prevent duplicate elements.
E) Lists are immutable but support item reassignment.

7.) What's the output of the below code?

```
x = [1, 2, 3]
y = (x, x)
x.append(4)
print(y[0][-1])
```

- A) 3 B) 1 C) None D) 2 E) 4

8.) What's the output of the below code?

```
t = (1, 2, [3, 4])
t[2].extend([5])
print(t[-1][-2])
```

- A) 3 B) 5 C) TypeError D) 4 E) IndexError

9.) Which of the following are correct? Select all that apply.

```
a = {1, 2, 3}
b = {3, 2, 1}
c = a == b
d = a is b
```

- A) c is True.
B) d is True.
C) Sets are unordered, so element order doesn't affect equality.
D) a and b refer to the same object in memory.
E) a and b contain different elements.

10.) What will be the output of the following code?

```
a = [10, 20]
```

```
b = [10, 20]
```

```
c = b
```

```
c.append(30)
```

```
print((a == b) is not (a is b), b is c)
```

- A) True False B) False True C) True True
D) False False E) SyntaxError

11.) Which of these is NOT a valid variable name in Python?

- A) my_var B) _hidden C) 1variable D) camelCase E) CONSTANT

12.) What is the output of the following combination of bitwise operations?

```
x = 13
```

```
y = 10
```

```
result = (x ^ y) << 1 | (x & ~y)
```

```
print(result)
```

- A) 15 B) 20 C) 19 D) 21 E) 7

13.) A set's elements must be of an immutable (hashable) type. Which of the following lines of code will result in a **TypeError**? Select all that apply.

- A) option_a = {1, {2, 3}} B) option_b = {1, (2, ('x', 'y'))}
C) option_c = {[1, 2], [3, 4]} D) option_d = {(1, 2): 'value'}
E) option_e = set([[1], [2]])

14.) Which of the following statements about Python dictionaries are correct? Select all that apply.

- A)** Dictionary keys must be immutable.
- B)** A list can be used as a key in a dictionary if it contains only immutable elements.
- C)** Dictionary keys can be integers, strings, tuples, or booleans.
- D)** Dictionary values can be any data type, including lists, sets, and other dictionaries.
- E)** Nested dictionaries are allowed in Python.

15.) What is the output of the following code?

```
d = {  
    'x': 1,  
    'y': 2  
}  
  
d.update({'x':10, 'z':3})  
  
print(d)
```

- A)** {'x': 1, 'y': 2, 'z': 3}
- B)** {'x': 10, 'y': 2}
- C)** {'x': 1, 'y': 2, 'z': 3, 'z': 3 }
- D)** {'x': 10, 'y': 2, 'z': 3}
- E)** {'x': 10, 'z': 3}

16.) Which of the following statements about tuples is correct?

- A)** Tuples are mutable and support item assignment.
- B)** Tuples must always contain at least one string.
- C)** Tuples are only used to store numbers.
- D)** Tuples can only have two elements.
- E)** Tuples are immutable, but elements can be changed if they are mutable types

17.) What will the following code print?

```
a = [10, 20, 30, 40]
```

```
a[1:3] = [99]
```

```
print(a)
```

- A) [10, 99, 40] B) [10, 99, 30, 40] C) [10, 20, 30, 99, 40]
D) [10, 20, 30, 40] E) [10, 99, 99, 40]

18.) What is the final content of the product dictionary after this sequence of operations?

```
product = {
```

```
    'id': 101,
```

```
    'price': 50,
```

```
    'stock': 12
```

```
}
```

```
product['price'] = product['price'] - 10
```

```
product['stock'] = product['stock'] + 8
```

```
del product['id']
```

```
product['available'] = True
```

```
print(product)
```

- A) {'id': 101, 'price': 40, 'stock': 20, 'available': True}
B) {'id': 101, 'price': 40, 'stock': 20}
C) {'price': 40, 'stock': 12, 'available': True}
D) Error
E) {'price': 40, 'stock': 20, 'available': True}

19.) What will be the output of the following code?

```
result = 4 * 5 - 2 ** 3 + 15 // 4 % 3
```

```
print(result)
```

- A) 27 B) -12 C) 11 D) 12 E) TypeError

20.) What will be the result of this operation?

```
x = ['a', 'b', 'c']
```

```
y = x.pop(1)
```

```
print(y, x)
```

- A) b ['a', 'c'] B) a ['b', 'c'] C) c ['a', 'b']
D) ['a', 'c'] ['a', 'c'] E) Error

Answers:

01. C

02. B

03. E

04. C

05. B

06. A, B, C

07. E

08. D

09. A, C

10. B

11. C

12. A

13. A, C, E

14. A, C, D, E

15. D

16. E

17. A

18. E

19. D

20. A